

REMARKS

Claims 1-12, and 14-20 are currently pending in the subject application, and claims 1-12, 14 and 15 are presently under consideration. Claims 1 and 10 have been amended as shown on pages 2-5 of the Reply. Applicants' representative thanks the Examiner for courtesies extended during a telephonic interview held on August 29, 2006, wherein possible amendments to the independent claims were discussed. The pending claims in the subject application have been amended according to such discussion.

Favorable reconsideration of the subject patent application is respectfully requested in view of the amendments and comments herein.

I. Rejection of Claims 1-8, 10-12, 14 and 15 Under 35 U.S.C. §103(a)

Claims 1-8, 10-12, 14 and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Subramanian *et al.* (U.S. 2003/0000922) and Le *et al.* (U.S. 5,801,954). Withdrawal of this rejection is requested for at least the following reasons. The cited references, either alone or in combination, fail to teach or suggest all limitations of the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) *must teach or suggest all the claim limitations*. See MPEP §706.02(j). The *teaching or suggestion to make the claimed combination* and the reasonable expectation of success *must be found in the prior art and not based on the Applicant's disclosure*. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicants' claimed invention relates to utilizing feedback or feed-forward systems in the fabrication of a reticle to reduce critical dimension variance resulting from imperfections in process control or device performance. In particular, independent claim 1 (and similarly

independent claim 10) recites *a reticle fabrication device and a regulation component that receives post-fabrication reticle scatterometry inspection data from the fabrication device and mitigates t-topping defects by utilizing the data to automatically adjust control parameters of the fabrication device, the control parameters comprise at least one of air filtration levels, electron beam exposure levels, electron beam size, bake duration and bake temperature.* Subramanian *et al.* and Le *et al.*, either alone or in combination, do not teach or suggest these aspects of the claimed invention.

Rather, Subramanian *et al.* relates to a system that facilitates characterizing an etching process involved in semiconductor manufacturing. (See paragraph 9). Scatterometry techniques are employed to analyze light reflected or refracted off a feature or grating on a wafer as the feature or grating is being etched. As etching progresses, light reflecting from a wafer may produce various scatterometry signatures that can be compared to a set of stored signatures. Analyzing the sequence of signatures produced during etching and the time required to produce transitions between the signatures can be utilized to determine if the rate of etching is acceptable. Further, the sequence of signatures can be employed to establish cause/effect relationships between adaptations and etch results. (See paragraphs 9, 42 and 43). Subramanian *et al.*, through an etch process characterizing system, analyzes scatterometry data to determine suggested adjustments or adaptations to the etch components. (See paragraphs 49 and 83). In the claimed invention, needed adjustments or changes are determined from analyzing the scatterometry data of t-topping defects and these changes are *automatically employed* by a control system such as an advanced process control system. (See pg. 6, ll. 15-30 and pg. 11, line 16 to pg. 12, line 9). Thus, Subramanian *et al.* utilizes the scatterometry data to make suggestions on possible adaptations to the etch process of *wafer fabrication* and nowhere discloses automatically making changes to at least one of air filtration levels, electron beam exposure levels, electron beam size, bake duration and bake temperature of the *reticle fabrication system* as recited in the subject claims. Therefore, Subramanian *et al.* does not teach or suggest each and every limitation of the claimed invention.

In the subject Office Action, Le *et al.* is relied upon to cure the deficiencies of Subramanian *et al.* Applicants' representative respectfully submits that Le *et al.* fails to make up for the aforementioned deficiencies of Subramanian *et al.* Rather, Le *et al.* relates to a process for checking phase-shifting mask layouts to determine if the masks will produce the desired

images. (See Summary). The pattern of a phase-shifting mask can often be very different from what is finally printed on a wafer. (See Background). Using aerial image simulation, a simulated wafer image is produced based on a provided layout image. The simulated wafer image is compared with the mask layout to verify if the desired pattern design was produced. (See col. 4, ll. 5-34). Thus, Le *et al.* is concerned with preventing the problem of incorrect pattern designs being printed on a wafer which is inherent in the use of phase-shifting masks and is silent regarding mitigating t-topping defects by utilizing the data to automatically adjust at least one of air filtration levels, electron beam exposure levels, electron beam size, bake duration and bake temperature recited by the claimed invention. Furthermore, in the subject Office Action, Le *et al.* is provided to only support the argument that similar processes produce wafers and reticles. Assuming *arguendo* that similar processes can produce both reticles and wafers, this fact does not pertain to the subject claims. Reticles and wafers are two distinct objects. A wafer is a thin slice of semiconductor material, while a reticle is a mask (typically made of quartz) utilized in the fabrication of wafers. Since wafers and reticles are directed towards different functions, different processes are necessary to inspect the two articles as the relevant features are not the same and different adaptations may be necessary to correct defects. Therefore, Le *et al.* fails to overcome the aforementioned deficiencies of Subramanian *et al.*

In view of at least the foregoing, it is readily apparent that Subramanian *et al.* and Le *et al.*, either alone or in combination, fail to disclose, teach or suggest each and every element recited in the subject claims. Therefore, the cited references do not make obvious applicants' claimed invention and this rejection should be withdrawn.

II. Rejection of Claim 9 Under 35 U.S.C. §103(a)

Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Subramanian *et al.* and Le *et al.* and further in view of Bojko (6,492,094). Withdrawal of this rejection is requested for at least the following reasons. The cited references do not teach or suggest each and every limitation of the subject claims. Claim 9 depends from independent claim 1, and Bojko fails to cure the aforementioned deficiencies of Subramanian *et al.* and Le *et al.* Accordingly, applicants' representative respectfully requests that this rejection be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [AMDP994US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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